UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6307
10 July - 8 August 1963

and

CCOFI Cruise 6309
3 - 29 September 1963

SIO Reference 64-18
25 May 1964

INSERT FOR CCOFI CRUISE 6307 (SIO Ref. 64-18)

The CCOFI cruise-numbering and station-numbering system has been slightly revised in order to make it more consistent with the system used by the National Oceanographic Data Center.

Cruise numbers. Hyphenated numbers indicating quarterly cruises (extending over a period of more than one month) will no longer be used. A four-digit number will appear instead, where the first two digits represent the year, and the last two digits the month in which the first data were collected.

Station numbers. Superscript numbers will not be used any longer, either for indication of the station line (before the decimal point) nor the station position along that line (after the decimal point). (Each station number represents, really, an area of about twelve by four nautical miles.) The exact position will be expressed by latitude and longitude.

UNIVERSITY OF CALIFORNIA

SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6307
10 July - 8 August 1963

and

CCOFI Cruise 6309
3 - 29 September 1963

Sponsored by

Marine Research Committee

SIO Reference 64-18
25 May 1964

Approved for distribution:

F. N. Spiess

F. N. Spiess, Director

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FIGURES

Insert rough draft of Intro.

6401

INTRODUCTION

The data presented in this report were collected by the RV Black Douglas of the Bureau of Commercial Fisheries ~~on Cruise 6307~~ and by the ~~RV Horizon and the~~ RV Alexander Agassiz of the Scripps Institution of Oceanography on Cruise ~~6309~~ 6401 of the California Cooperative Oceanic Fisheries Investigations program. The first two figures in this cruise numbering system represent the year of the cruise; the last two figures, the month. The cruises preceding this one in the series are ~~6301-2 (SIO Ref. 64-2)~~ 6301 and 6309 (SIO Ref 64-18) and 6310, 6311 and 6311 (El Golfo) (SIO Ref. 65-1). and 6306 (SIO Ref. 64-13).

The data are tabulated at observed depths; the interpolated and computed values are tabulated at standard depths and are accompanied by charts of horizontal distribution. omit The presentation of data in this report does not constitute publication; however, the data contained in this report have been carefully edited and no modifications should be necessary before final publication.

STANDARD PROCEDURES

Processing of the data was carried out using the method described by Klein.[1/] The 125-meter level was introduced into the integration to obtain greater accuracy in the determination of ΔD.

To indicate degree of accuracy, temperatures are recorded in tenths of a degree when obtained by bucket thermometer, thermograph, or bathythermograph, while temperatures from reversing thermometers are recorded in hundredths of a degree. The salinity values obtained by salinometer are recorded to three decimal places, provided they meet accepted standards. The values recorded "have a reproducibility of ±0.004‰ salinity at the 95 per cent probability level, and a probable accuracy of ±0.01‰ salinity or better at the same level of probability."[2/] The values are recorded to two decimal places when obtained by chlorinity titration, or by salinometer where only one determination per sample was obtained, or where there is doubt concerning the accuracy of a particular sample, or of all samples on

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1/ Klein, Hans T. A new technique for processing physical oceanographic data. MS.

2/ Quotation from Department of Oceanography, University of Washington, Tech. Rep. No. 66, UW Ref. 60-18, October 1960.

a station. The accuracy of all samples obtained by salinometer and recorded to two decimal places is believed to be equal to or better than those obtained by manual titration.

Extrapolated values and values interpolated between remote observations are entered within parentheses. A hyphen is used to indicate a missing observed value. The time is the time of messenger release. When more than one cast was made on a station, messenger times and wire angles are given in the order of increasing depth. A line is left blank between the observed data of each cast.

On stations where more than one cast is lowered, the various property curves may not agree perfectly. This discrepancy may be caused by changes in geographical position, real property changes with time, slight error in measurement, or a combination of these factors. Stations with overlapping casts have the following footnote: Overlapping casts; reconciliation of property curves when necessary.

FOOTNOTES

Laboratory personnel note any possible imperfections in the sealing of the bottles as follows:

Loose bottle cap:	The cap is definitely loose so that it could be moved with very little applied pressure. The salinity values obtained from these samples may be usable depending on time and/or conditions of storage.
Possible evaporation:	Either the cap was sealed with less than usual pressure, the bottle edge chipped, the rubber washer cracked, or the bale broke on opening, etc.

Use of the above values in interpolation depends upon consistency with other values of salinity and other properties, and these footnotes are supplemented with "falls on property curve" or "does not fall on property curve," depending upon whether the property curve was drawn through the value or not.

In addition to footnotes, two special notations are used without footnotes because their meaning is always the same.

To indicate a premature or a delayed reversal of the water-sampling device which results in certain depth and property errors, the following notation is used.

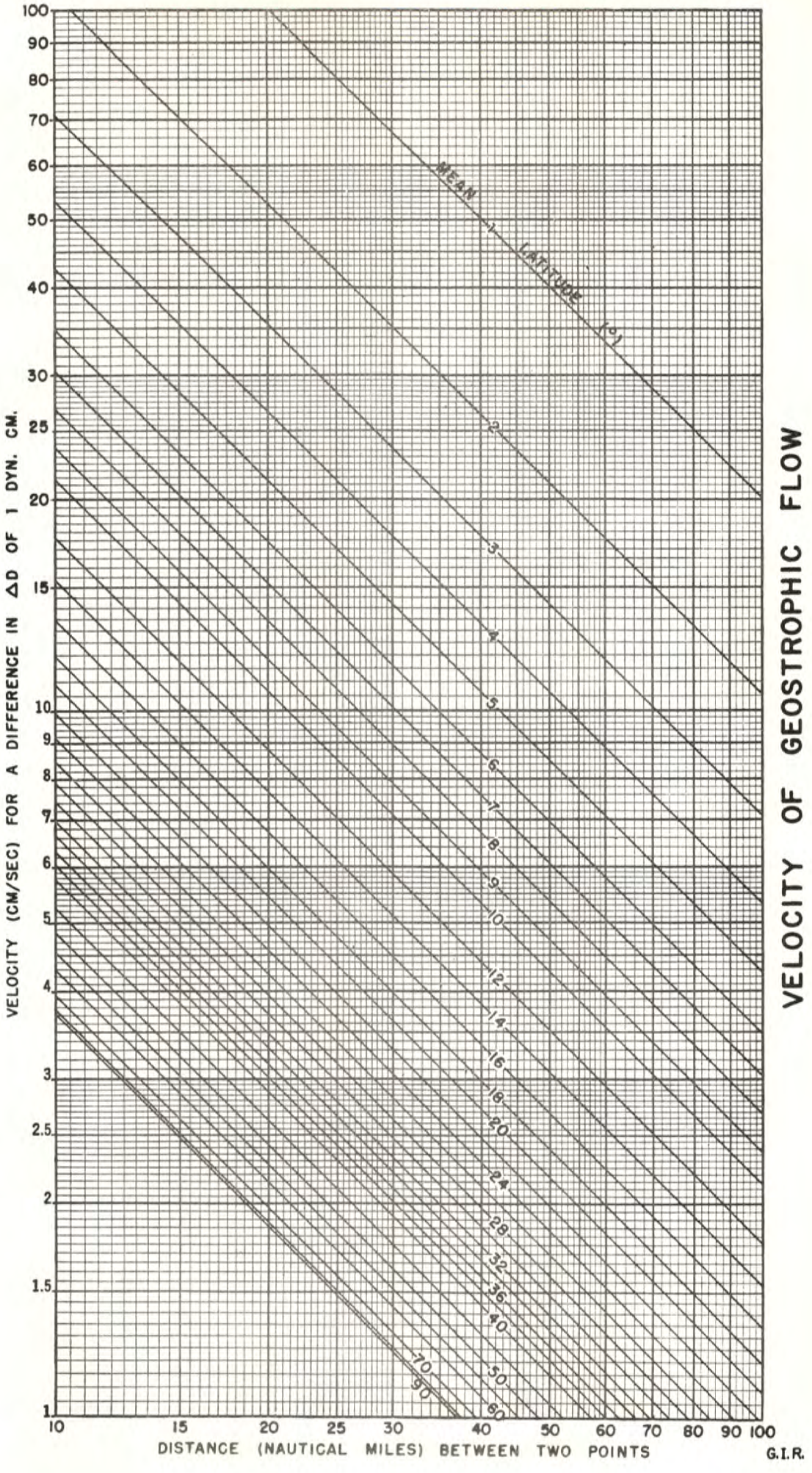
p: pretrip or posttrip.

Values which are not drawn through because they seem to be in error without apparent reason are indicated by the following notation.

u: uncertain value (value may be correct; occasionally it can influence the drawing of the property curve).

FORMAT

These data were collected in part by personnel of and processed completely by the Data Collection and Processing Group (DCPG, MLR) Scripps Inst. of Oceanography. They are typed in the format of the University of California Press publication, Oceanic Observations of the Pacific.


VELOCITY OF GEOSTROPHIC FLOW
VELOCITY (CM/SEC) FOR A DIFFERENCE IN ΔD OF 1 DYN. CM.
DISTANCE (NAUTICAL MILES) BETWEEN TWO POINTS
MEAN LATITUDE (φ)
1
2
3
4
5
6
7
8
9
10
12
14
16
18
20
24
28
32
36
40
50
60
70
90
100
90
80
70
60
50
40
30
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20
15
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9
8
7
6
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4
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10
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40
50
60
70
80
90
100
G.I.R.

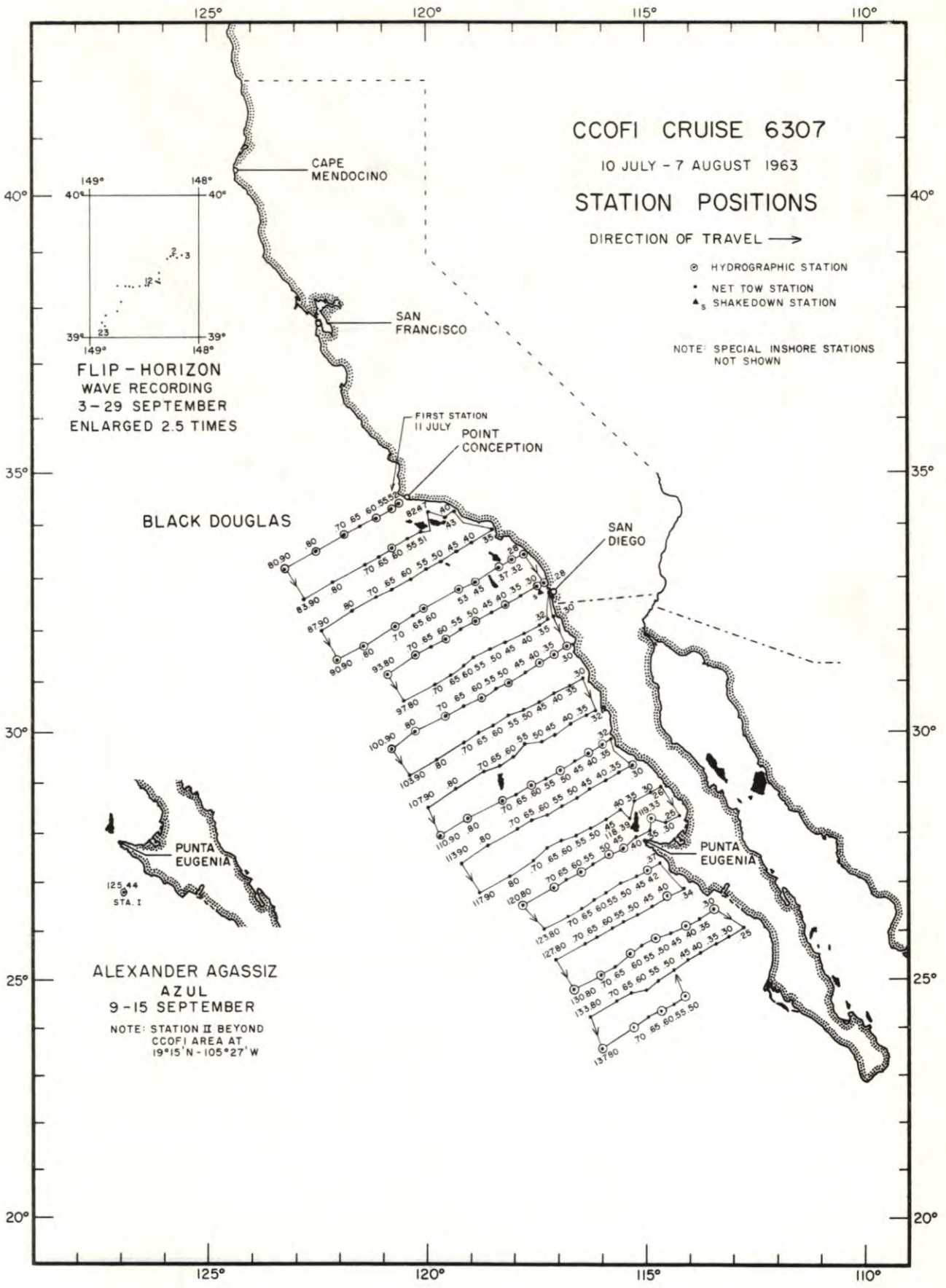
CCOFI CRUISE 6307
10 JULY - 7 AUGUST 1963
STATION POSITIONS
DIRECTION OF TRAVEL
HYDROGRAPHIC STATION
NET TOW STATION
SHAKEDOWN STATION
NOTE: SPECIAL INSHORE STATIONS NOT SHOWN
CAPE MENDOCINO
SAN FRANCISCO
FIRST STATION 11 JULY
POINT CONCEPTION
SAN DIEGO
BLACK DOUGLAS
PUNTA EUGENIA
PUNTA EUGENIA
125.44 STA. I
ALEXANDER AGASSIZ
AZUL
9-15 SEPTEMBER
NOTE: STATION II BEYOND CCOFI AREA AT 19°15'N - 105°27'W
FLIP - HORIZON
WAVE RECORDING
3-29 SEPTEMBER
ENLARGED 2.5 TIMES
149°
148°
40°
39°
125°
120°
115°
110°
35°
30°
25°
20°

FIGURE 1

FIGURES
Cruise 6309

1. See inserts on station position chart for CCOFI Cruise 6307

PERSONNEL
Cruise 6309

SHIPS' CAPTAINS

Ferris, Noel L., RV Horizon
Newbegin, Robert C., RV Alexander Agassiz

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Alexander Agassiz

Pine, James S., Senior Marine Technician

RV Horizon

Bottom, Kenneth S., Senior Marine Technician
Brennen, Robert E., Senior Marine Technician
Ferreira, Simon M., Marine Technician

SIO

CCOFI
6309

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

H-1 HORIZON; September 3, 1963; 1846 GCT; 39°33.5'N, 148°14'W;[a] sounding, 2800+ fm; wind, 340°, force 4; weather, partly cloudy; sea, high; wire angle, 00°.[b]

1	20.55				0	(20.55)					
11	20.56				10	20.56					
31	16.37				20	20.55					
60	12.74				30	16.80					
80	12.14				50	13.50					
95	11.46				75	12.28					
110	11.10				100	11.28					
139	10.72				125	11.00					
164	10.25				150	10.49					
194	9.95				200	9.85					
228	9.42				250	9.13					
298	8.56				300	8.52					
407	6.90				400	7.03					
516	5.29				500	5.49					
655	4.31				600	4.60					
814	3.80				700	4.14					
982	3.30				800	3.84					
					1000	(3.24)					

H-2 HORIZON; September 4, 1963; 1846 GCT; 39°33.5'N, 148°14'W; sounding, 2800+ fm; wind, 220°, force 5; weather, cloudy; sea, high; wire angle, 02°.

1	20.58	33.504	5.42	441	0	(20.58)	(33.50)	(5.42)	(23.49)	(441)	(0.00)
11	20.60	33.52	5.46	440	10	20.60	33.52	5.46	23.50	440	0.04
31	16.22	33.626	6.50	329	20	20.00	33.54	5.64	23.67	423	0.09
60	12.54	33.656	6.43	253	30	16.50	33.62	6.48	24.59	335	0.13
80	11.81	33.675	6.27	238	50	13.17	33.65	6.46	25.33	265	0.19
95	11.60	33.773	5.92	227	75	11.97	33.66	6.34	25.57	242	0.25
110	11.10	33.795	5.88	217	100	11.49	33.78	5.92	25.76	225	0.31
139	10.76	34.086	5.37	190	125	10.70	33.91	5.59	26.00	202	0.36
164	10.22	34.111	5.33	179	150	10.51	34.10	5.35	26.18	184	0.41
194	9.94	34.137	5.36	172	200	9.86	34.13	5.37	26.32	171	0.50
228	9.44	34.095	5.43	167	250	9.16	34.07	5.41	26.39	165	0.59
298	8.54	34.046	5.09	157	300	8.51	34.04	5.08	26.46	158	0.67
406	6.84	33.995	3.98	138	400	6.93	34.00	4.01	26.66	139	0.83
515	5.22	33.972	2.93	120	500	5.43	33.97	3.05	26.83	123	0.96
654	4.30	34.080	1.67	102	600	4.60	34.04	2.13	26.98	108	1.08
811	3.78	34.214	0.83	87	700	4.13	34.12	1.38	27.10	98	1.19
980	3.26	34.322	0.57	74	800	3.81	34.20	0.89	27.19	89	1.29
1192	2.86	34.417	0.51	64	1000	3.21	34.34	0.56	27.36	72	1.47
					1200	(2.84)	(34.42)	(0.51)	(27.46)	(63)	(1.62)

H-3 HORIZON; September 6, 1963; 1805 GCT; 39°33.5'N, 148°09.3'W; sounding, 2800+ fm; wind, 210°, force 3; weather, cloudy; sea, rough; wire angle, 20°.

1	20.92	33.718	5.33	434	0	(20.92)	(33.72)	(5.33)	(23.56)	(434)	(0.00)
10	20.89	33.727	5.33	432	10	20.89	33.73	5.33	23.58	432	0.04
29	20.24	33.669	5.53	420	20	20.82	33.72	5.36	23.59	431	0.09
54	12.94	33.634	6.55	262	30	19.40	33.66	5.71	23.92	400	0.13
72	12.06	33.671	6.38	243	50	13.15	33.63	6.53	25.32	266	0.19
86	11.86	33.721	6.08	236	75	12.00	33.68	6.33	25.58	241	0.26
100	11.36	33.789	5.94	222	100	11.36	33.79	5.94	25.79	222	0.32
125	10.93	34.066	5.40	194	125	10.93	34.07	5.40	26.08	194	0.37
148	10.49	34.113	5.30	183	150	10.47	34.12	5.30	26.20	182	0.42
175	10.26	34.147	5.31	177	200	9.84	34.13	5.35	26.32	171	0.51
205	9.76	34.124	5.35	170	250	9.20	34.08	5.31	26.39	165	0.59
268	8.99	34.070	5.29	162	300	8.47	34.04	5.15	26.47	157	0.68
366	7.34	33.990	4.44	145	400	6.86	33.98	4.06	26.66	139	0.83
466	5.96	33.975	3.42	128	500	5.53	33.98	3.10	26.83	123	0.97
595	4.55	34.015	2.29	110	600	4.53	34.02	2.24	26.97	109	1.09
744	3.98	34.164	1.16	93	700	4.14	34.12	1.47	27.09	98	1.20
905	3.47	34.276	0.64	80	800	3.80	34.21	0.91	27.20	88	1.30
1108	3.04	34.379	0.49	68	1000	3.27	34.32	0.56	27.34	74	1.47

a) Estimated position.

b) Twenty-three hydrographic casts were made in conjunction with bathythermograms from the Floating Instrument Platform (FLIP) for internal wave studies.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O_2	δ_T	Z	T	S	O_2	σ_t	δ_T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m
HORIZON; September 7, 1963; 1909 GCT; 39°32.5'N, 148°11'W; sounding, 2800+ fm; wind, 220°, force 2; weather, overcast; sea, rough; wire angle, 10°.											H-4
1	20.96	33.716	5.37	435	0	(20.96)	(33.72)	(5.37)	(23.55)	(435)	(0.00)
11	20.95	33.712	5.43	435	10	20.95	33.72	5.43	23.56	434	0.04
30	16.28	33.567	6.50	334	20	20.62	33.70	5.53	23.63	427	0.09
40	14.62	33.626	6.59	295	30	16.28	33.57	6.50	24.61	334	0.12
54	12.87	33.593	6.67	263	50	13.48	33.60	6.64	25.23	275	0.19
69	12.30	33.605	6.50	252	75	12.15	33.63	6.40	25.52	247	0.25
94	11.72	33.755	5.97	231	100	11.55	33.80	5.83	25.76	224	0.31
113	11.10	33.921	5.58	207	125	10.89	34.03	5.40	26.06	196	0.36
133	10.80	34.090	5.32	190	150	10.54	34.11	5.32	26.18	184	0.41
152	10.50	34.114	5.32	183	200	9.82	34.12	5.34	26.32	172	0.50
181	10.10	34.133	5.30	175	250	9.17	34.07	5.30	26.38	165	0.59
216	9.60	34.097	5.38	170	300	8.53	34.04	4.95	26.46	158	0.67
244	9.24	34.077	5.35	166	400	6.94	33.98	4.17	26.65	140	0.83
294	8.62	34.049	4.99	158	500	5.46	33.97	3.11	26.83	123	0.97
348	7.70	33.990	4.77	150	600	(4.46)	(34.02)	(2.11)	(26.98)	(108)	(1.09)
431	6.48	33.981	3.79	134							
514	5.26	33.967	2.99	121							
598	4.48	34.019	2.14	109							
HORIZON; September 8, 1963; 1851 GCT; 39°33.5'N, 148°12.5'W; sounding, 2800+ fm; wind, 200°, force 2; weather, overcast; sea, very rough; wire angle, 02°.											H-5
1	20.79	33.617	5.38	438	0	(20.79)	(33.62)	(5.38)	(23.52)	(438)	(0.00)
11	20.79	33.622	5.46	437	10	20.79	33.62	5.45	23.52	438	0.04
31	15.46	33.602	6.57	314	20	20.76	33.62	5.48	23.53	437	0.09
41	14.18	33.646	6.65	285	30	15.55	33.60	6.55	24.79	316	0.13
55	13.00	33.632	6.71	263	50	13.40	33.64	6.70	25.28	270	0.18
70	12.11	33.612	6.58	248	75	11.80	33.63	6.42	25.58	241	0.25
95	11.73	33.747	6.08	231	100	11.62	33.79	5.98	25.74	226	0.31
115	11.25	33.919	5.68	210	125	11.01	34.01	5.60	26.02	199	0.36
135	10.80	34.088	5.53	190	150	10.52	34.12	5.41	26.20	183	0.41
154	10.45	34.131	5.39	181	200	9.88	34.13	5.40	26.31	172	0.50
184	10.10	34.145	5.38	174	250	9.11	34.06	5.36	26.39	165	0.59
219	9.58	34.096	5.43	170	300	8.42	34.01	5.35	26.45	158	0.67
248	9.14	34.068	5.36	165	400	6.92	33.99	4.23	26.66	139	0.82
298	8.44	34.009	5.37	159	500	5.47	33.97	3.13	26.83	123	0.96
352	7.76	34.004	4.72	150	600	4.58	34.01	2.33	26.96	110	1.08
436	6.33	33.981	3.95	133							
520	5.21	33.970	2.97	120							
603	4.56	34.014	2.32	110							
HORIZON; September 10, 1963; 0635 GCT; 39°31.5'N, 148°16.5'W; sounding, 2800+ fm; wind, 340°, force 5; weather, cloudy; sea, very rough; wire angle, 09°.											H-6
1	20.46	33.590	5.48	431	0	(20.46)	(33.59)	(5.48)	(23.59)	(431)	(0.00)
11	20.46	33.592	5.54	431	10	20.46	33.59	5.53	23.59	431	0.04
20	20.45	33.583	5.49	432	20	20.45	33.58	5.49	23.58	432	0.09
25	20.40	-	5.39		30	19.44	33.52	5.81	23.80	411	0.13
30	19.44	33.518	5.81	411	50	14.27	33.65	6.72	25.11	286	0.20
40	15.50	33.632	6.66	313	75	12.40	33.65	6.52	25.49	251	0.27
53	13.92	33.654	6.71	279	100	11.74	33.69	6.14	25.64	236	0.33
68	12.52	33.560	6.73	259	125	11.07	33.86	5.78	25.90	211	0.38
92	12.07	33.703	6.21	241	150	10.70	34.08	5.39	26.13	189	0.43
111	11.30	33.683	6.06	228	200	9.90	34.13	5.40	26.31	172	0.53
149	10.72	34.080	5.41	189	250	9.17	34.06	5.46	26.38	166	0.61
178	10.29	34.146	5.31	177	300	8.51	34.03	5.09	26.46	158	0.70
212	9.70	34.115	5.44	170	400	6.88	33.99	3.94	26.66	139	0.85
241	9.29	34.076	5.47	167	500	5.41	33.98	3.07	26.84	122	0.99
290	8.64	34.035	5.23	160	600	(4.49)	(34.03)	(2.16)	(26.99)	(108)	(1.11)
343	7.92	34.020	4.66	151							
427	6.41	33.978	3.70	134							
511	5.28	33.976	2.97	121							
594	4.53	34.027	2.19	109							

SIO

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6309

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

H-7 HORIZON; September 12, 1963; 0611 GCT; 39°26.5'N, 148°20.5'W; sounding, 2800+ fm; wind, 280°, force 4; weather, cloudy; sea, rough; wire angle, 07°.

1	20.26	33.407	5.58	440	0	(20.26)	(33.41)	(5.58)	(23.50)	(439)	(0.00)
11	20.24	33.420	5.61	438	10	20.24	33.42	5.60	23.52	438	0.04
20	20.23	33.480	5.56	433	20	20.23	33.48	5.56	23.56	433	0.09
25	20.04	33.467	5.54	430	30	20.21	33.56	5.63	23.63	427	0.13
30	20.21	33.558	5.63	427	50	13.55	33.53	6.87	25.16	281	0.20
40	15.40	33.547	6.82	317	75	12.21	33.55	6.45	25.44	254	0.27
54	13.12	33.524	6.88	273	100	11.76	33.67	6.00	25.62	237	0.33
69	12.34	33.525	6.61	259	125	11.10	33.92	5.61	25.94	208	0.39
94	11.87	33.643	6.05	241	150	10.49	34.09	5.46	26.18	185	0.44
114	11.45	33.732	5.89	227	200	9.85	34.11	5.46	26.30	173	0.53
134	10.82	34.067	5.46	192	250	9.21	34.07	5.45	26.38	166	0.62
153	10.44	34.096	5.46	183	300	8.70	34.05	5.10	26.44	160	0.70
182	10.06	34.122	5.46	175	400	6.99	33.99	4.05	26.65	140	0.85
217	9.62	34.099	5.46	170	500	5.40	33.98	3.10	26.84	122	0.99
245	9.26	34.077	5.46	166	600	4.53	34.03	2.25	26.98	108	1.11
295	8.76	34.059	5.14	160							
349	7.98	34.026	4.69	151							
433	6.37	33.980	3.68	133							
517	5.18	33.979	2.98	119							
601	4.50	34.027	2.24	108							

H-8 HORIZON; September 12, 1963; 1848 GCT; 39°23.5'N, 148°21'W; sounding, 2800+ fm; wind, 350°, force 3; weather, partly cloudy; sea, rough; wire angle, 00°.

0	20.40	33.490	5.54	437	0	20.40	33.49	5.54	23.53	437	0.00
10	20.31	33.496	5.53	434	10	20.31	33.50	5.53	23.56	434	0.04
20	20.38	33.557	5.52	432	20	20.38	33.56	5.52	23.59	431	0.09
25	20.34	33.585	5.43	429	30	18.91	33.49	6.11	23.91	400	0.13
30	18.91	33.489	6.11	400	50	14.25	33.48	6.90	24.98	298	0.20
40	14.84	33.429	6.92	314	75	12.53	33.57	6.55	25.40	259	0.27
54	13.68	33.531	6.85	283	100	12.15	33.83	5.93	25.67	233	0.33
69	12.76	33.546	6.68	265	125	11.00	34.01	5.49	26.03	199	0.39
94	11.97	33.656	6.05	242	150	10.39	34.10	5.44	26.20	182	0.43
114	11.40	33.867	5.74	217	200	9.70	34.11	5.40	26.33	170	0.52
134	10.74	34.082	5.40	189	250	9.01	34.07	5.35	26.41	163	0.61
153	10.33	34.106	5.44	181	300	8.53	34.04	5.02	26.46	158	0.69
183	9.92	34.121	5.44	173	400	6.98	33.99	3.99	26.65	140	0.85
218	9.45	34.088	5.33	168	500	5.42	33.97	3.12	26.83	123	0.98
247	9.04	34.073	5.36	163	600	4.54	34.02	2.26	26.97	109	1.11
297	8.57	34.045	5.05	158							
351	7.74	34.015	4.47	148							
435	6.42	33.970	3.68	134							
519	5.16	33.968	2.96	120							
604	4.51	34.022	2.21	109							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O_2	δ_T	Z	T	S	O_2	σ_t	δ_T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m
HORIZON; September 13, 1963; 1840 GCT; 39°22'N, 148°21'W; sounding, 2800+ fm; wind, 230°, force 3; weather, cloudy; sea, moderate; wire angle, 04°.											H-9
0	20.69	33.514	5.43	443	0	20.69	33.51	5.43	23.47	443	0.00
10	20.58	33.622	5.44	432	10	20.58	33.62	5.44	23.58	432	0.04
20	20.54	33.663	5.45	428	20	20.54	33.66	5.45	23.62	428	0.09
25	19.56	33.575	5.64	410	30	17.82	33.46	6.18	24.16	377	0.13
30	17.82	33.460	6.18	377	50	13.50	33.52	6.83	25.17	281	0.19
40	14.48	33.463	6.88	304	75	12.25	33.57	6.43	25.45	254	0.26
54	13.11	33.538	-	272	100	12.00	33.74	5.95	25.63	237	0.32
69	12.34	33.545	6.50	257	125	11.14	33.89	5.64	25.91	210	0.38
94	12.12	33.713	6.01	241	150	10.63	34.11	5.43	26.17	186	0.43
114	11.40	33.758	5.83	225	200	9.86	34.11	5.43	26.30	173	0.52
134	10.97	34.011	5.50	199	250	9.18	34.07	5.40	26.38	165	0.61
153	10.56	34.111	5.42	184	300	8.48	34.04	4.98	26.47	157	0.69
182	10.05	34.116	5.40	176	400	6.79	33.99	3.90	26.67	138	0.84
217	9.69	34.102	5.46	171	500	5.37	33.98	3.07	26.85	121	0.98
246	9.24	34.079	5.41	166	600	4.47	34.03	2.12	26.99	108	1.10
296	8.54	34.046	5.01	157							
350	7.77	34.019	4.46	149							
434	6.20	33.975	3.59	131							
518	5.15	33.976	2.94	119							
601	4.47	34.030	2.12	108							
HORIZON; September 14, 1963; 1839 GCT; 39°23'N, 148°22'W; sounding, 2800+ fm; wind, 270°, force 4; weather, overcast; sea, moderate; wire angle, 06°.											H-10
0	20.64	33.467	5.55	445	0	20.64	33.47	5.55	23.45	445	0.00
10	20.61	33.469	5.55	444	10	20.61	33.47	5.55	23.46	444	0.04
20	20.60	33.465	-	444	20	20.60	33.46	5.55	23.45	444	0.09
25	20.17	33.423	5.54	436	30	17.97	33.45	6.46	24.11	381	0.13
30	17.97	33.451	6.46	381	50	12.99	33.54	6.75	25.28	270	0.20
40	14.90	33.543	6.88	307	75	12.17	33.59	6.32	25.48	251	0.26
54	12.97	33.544	6.75	269	100	11.50	33.68	5.87	25.68	232	0.32
69	12.36	33.579	6.49	255	125	11.13	33.98	5.55	25.98	204	0.38
94	11.74	33.654	5.93	238	150	10.49	34.09	5.46	26.18	185	0.43
113	11.40	33.843	5.78	218	200	9.80	34.09	5.46	26.30	173	0.52
133	10.92	34.055	5.45	195	250	9.17	34.07	5.44	26.38	165	0.60
152	10.44	34.093	5.47	184	300	8.55	34.04	5.03	26.46	158	0.69
182	10.05	34.128	5.40	175	400	7.08	33.99	4.16	26.63	141	0.84
217	9.56	34.095	5.50	169	500	5.47	33.97	3.18	26.83	123	0.98
245	9.22	34.074	5.47	166	600	4.56	34.03	2.26	26.98	109	1.10
295	8.62	34.048	5.07	159							
349	7.78	34.019	4.57	149							
433	6.62	33.978	3.85	136							
517	5.19	33.968	3.00	120							
601	4.55	34.028	2.25	109							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

H-11 HORIZON; September 15, 1963; 1849 GCT; 39°23'N, 148°23'W; sounding, 2800+ fm; wind, 310°, force 4; weather, drizzle; sea, moderate; wire angle, 00°.

0	20.70	33.446	5.45	448	0	20.70	33.45	5.45	23.42	448	0.00
10	20.68	33.450	5.48	447	10	20.68	33.45	5.48	23.42	447	0.04
20	20.08	33.434	5.47	433	20	20.08	33.43	5.47	23.57	433	0.09
25	18.63	33.445	6.05	397	30	15.98	33.45	6.78	24.58	337	0.13
30	15.98	33.451	6.78	336	50	13.25	33.51	6.76	25.21	277	0.19
40	14.48	33.496	6.81	302	75	11.80	33.57	6.17	25.54	246	0.25
54	12.84	33.518	6.70	268	100	11.50	33.79	5.70	25.76	224	0.31
69	12.05	33.547	6.32	252	125	10.89	34.04	5.38	26.07	195	0.37
94	11.64	33.703	5.84	233	150	10.39	34.09	5.39	26.19	183	0.41
114	11.17	33.990	5.46	204	200	9.73	34.10	5.37	26.32	172	0.51
134	10.66	34.068	5.36	189	250	9.15	34.07	5.40	26.39	165	0.59
153	10.34	34.099	5.39	182	300	8.56	34.05	4.93	26.46	157	0.67
183	9.92	34.119	5.36	173	400	6.85	33.98	3.95	26.66	139	0.83
218	9.52	34.086	5.38	169	500	5.40	33.97	3.05	26.83	122	0.97
247	9.19	34.070	5.41	165	600	4.57	34.01	2.30	26.96	110	1.09
297	8.60	34.050	4.96	158							
352	7.74	34.012	4.47	149							
436	6.24	33.970	3.59	132							
520	5.16	33.968	2.90	120							
604	4.54	34.014	2.27	110							

H-12 HORIZON; September 16, 1963; 1833 GCT; 39°21.5'N, 148°27'W; sounding, 2800+ fm; wind, 310°, force 6; weather, overcast; sea, very rough; wire angle, 05°.

0	20.65	33.500	5.51	443	0	20.65	33.50	5.51	23.47	443	0.00
10	20.64	33.500	5.49	442	10	20.64	33.50	5.49	23.47	442	0.04
20	20.66	33.527	5.46	441	20	20.66	33.53	5.46	23.49	441	0.09
25	20.64	33.560	5.38	438	30	19.05	33.46	6.02	23.85	406	0.13
30	19.05	33.464	6.02	406	50	13.80	33.51	6.81	25.10	287	0.20
40	15.53	33.455	6.82	327	75	12.24	33.57	6.42	25.45	253	0.27
54	13.23	33.531	6.77	275	100	11.86	33.71	5.89	25.63	236	0.33
69	12.32	33.533	6.52	258	125	11.10	33.94	5.56	25.95	206	0.39
94	12.02	33.687	5.97	241	150	10.50	34.11	5.37	26.19	183	0.44
114	11.46	33.772	5.82	225	200	9.68	34.11	5.40	26.33	170	0.53
133	10.86	34.057	5.39	193	250	9.15	34.07	5.29	26.39	165	0.61
152	10.46	34.113	5.36	183	300	8.53	34.05	4.97	26.47	157	0.69
182	9.88	34.117	5.39	173	400	7.00	33.99	3.92	26.65	140	0.85
217	9.52	34.095	5.40	169	500	5.50	33.97	3.22	26.82	123	0.99
246	9.20	34.077	5.31	165	600	4.60	34.01	2.38	26.96	111	1.11
296	8.58	34.051	5.00	158							
350	7.81	34.021	4.19	149							
434	6.47	33.977	3.78	135							
518	5.26	33.970	3.05	121							
601	4.59	34.009	2.36	111							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

H-13

HORIZON; September 17, 1963; 1806 GCT; 39°21.5'N, 148°28.5'W; sounding, 2800+ fm; wind, 350°, force 4; weather, overcast; sea, rough; wire angle, 07°.

1	20.66	33.438	5.47	447	0	(20.66)	(33.44)	(5.47)	(23.42)	(447)	(0.00)
11	20.66	33.531	5.48	441	10	20.66	33.53	5.48	23.49	441	0.04
21	20.64	33.565	5.47	438	20	20.64	33.56	5.47	23.52	438	0.09
26	20.63	33.572	5.41	437	30	18.00	33.46	6.35	24.11	381	0.13
31	17.74	33.449	6.44	376	50	14.20	33.48	6.84	24.99	297	0.20
41	14.92	33.439	6.90	315	75	12.14	33.53	6.39	25.44	255	0.27
55	13.28	33.545	6.75	275	100	12.18	33.76	5.93	25.61	238	0.33
70	12.28	33.531	6.49	257	125	11.08	33.98	5.50	25.99	203	0.38
95	12.22	33.743	5.97	240	150	10.56	34.09	5.38	26.17	186	0.43
114	11.39	33.834	5.69	219	200	9.90	34.12	5.37	26.30	173	0.53
134	10.87	34.062	5.39	193	250	9.29	34.09	5.36	26.38	166	0.61
153	10.50	34.090	5.38	185	300	8.58	34.05	5.00	26.46	158	0.70
183	10.12	34.140	5.35	175	400	7.05	34.00	4.05	26.65	140	0.85
217	9.68	34.108	5.39	170	500	5.55	33.97	3.23	26.82	124	0.99
246	9.34	34.088	5.37	166	600	4.57	34.02	2.31	26.97	110	1.11
296	8.64	34.057	5.04	158							
349	7.78	34.018	4.48	149							
433	6.59	33.982	3.79	136							
517	5.32	33.970	3.10	121							
601	4.55	34.017	2.29	110							

H-14

HORIZON; September 19, 1963; 0122 GCT; 39°22'N, 148°32'W; sounding, 2800+ fm; wind, 240°, force 3; weather, cloudy; sea, moderate; wire angle, 02°.

1	21.04	33.474	5.49	455	0	(21.04)	(33.47)	(5.49)	(23.34)	(455)	(0.00)
11	20.84	33.475	5.49	449	10	20.86	33.47	5.49	23.39	450	0.05
21	19.66	33.475	5.87	420	20	19.90	33.48	5.78	23.65	425	0.09
26	16.80	33.431	6.61	356	30	15.55	33.46	6.87	24.69	327	0.13
31	15.40	33.463	6.87	323	50	13.36	33.56	6.70	25.23	275	0.19
41	14.52	33.598	6.76	295	75	12.20	33.61	6.25	25.49	250	0.25
55	12.88	33.549	6.67	267	100	11.64	33.72	5.84	25.68	232	0.31
70	12.29	33.594	6.34	253	125	10.97	34.01	5.43	26.03	199	0.37
95	11.79	33.683	5.92	237	150	10.42	34.10	5.39	26.20	183	0.42
115	11.17	33.930	5.55	208	200	9.80	34.11	5.40	26.31	172	0.51
135	10.74	34.073	5.36	190	250	9.07	34.07	5.23	26.40	164	0.59
154	10.34	34.104	5.40	181	300	8.54	34.04	4.94	26.46	158	0.68
184	10.01	34.128	5.39	174	400	6.79	33.99	3.88	26.67	138	0.83
219	9.51	34.088	5.40	169	500	5.29	33.97	3.00	26.85	121	0.96
248	9.10	34.066	5.26	164	600	4.46	34.03	2.08	26.99	108	1.08
298	8.57	34.044	4.96	158							
351	7.64	34.015	4.38	147							
435	6.20	33.970	3.56	132							
520	5.06	33.976	2.86	118							
604	4.44	34.035	2.06	107							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O_2	δ_T	Z	T	S	O_2	σ_t	δ_T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

H-15 HORIZON; September 19, 1963; 1838 GCT; 39°22.5'N, 148°36.5'W; sounding, 2800+ fm; wind, 300°, force 6; weather, cloudy; sea, rough; wire angle, 05°.

1	20.74	33.560	5.46	441	0	(20.74)	(33.56)	(5.46)	(23.49)	(441)	(0.00)
11	20.75	33.555	5.46	441	10	20.75	33.55	5.47	23.48	442	0.04
21	20.73	33.559	5.49	440	20	20.73	33.56	5.49	23.49	440	0.09
26	20.70	33.569	5.38	439	30	19.50	33.51	5.79	23.78	413	0.13
31	18.46	33.465	6.26	391	50	14.45	33.45	6.87	24.92	305	0.20
41	16.22	33.431	6.77	343	75	12.32	33.54	6.48	25.42	257	0.27
55	13.61	33.474	6.88	286	100	12.19	33.72	6.02	25.58	242	0.34
70	12.55	33.514	6.61	263	125	11.22	33.95	5.53	25.94	207	0.39
95	12.20	33.697	6.05	243	150	10.54	34.08	5.38	26.16	186	0.44
115	11.67	33.756	5.84	230	200	9.80	34.10	5.39	26.30	173	0.53
135	10.91	34.047	5.41	195	250	9.12	34.05	5.32	26.38	166	0.62
154	10.46	34.099	5.36	184	300	8.51	34.02	4.93	26.45	159	0.71
185	10.01	34.108	5.36	176	400	6.89	33.96	3.98	26.64	141	0.86
219	9.52	34.073	5.44	170	500	5.45	33.93	3.12	26.80	126	1.00
247	9.16	34.053	5.34	166	600	4.58	33.98	2.30	26.94	113	1.13
297	8.56	34.026	4.98	159							
351	7.78	33.986	4.48	151							
435	6.30	33.936	3.64	136							
519	5.22	33.932	3.00	123							
603	4.56	33.981	2.27	112							

H-16 HORIZON; September 20, 1963; 1833 GCT; 39°21.5'N, 148°40'W; sounding, 2800+ fm; wind, 350°, force 4; weather, cloudy; sea, high; wire angle, 00°.

1	20.58	33.536	5.51	438	0	(20.58)	(33.54)	(5.51)	(23.52)	(438)	(0.00)
11	20.57	33.540	5.50	438	10	20.57	33.54	5.50	23.52	438	0.04
21	20.56	33.545	5.49	437	20	20.56	33.54	5.49	23.52	437	0.09
26	20.57	33.540	5.40	438	30	20.41	33.54	5.45	23.56	434	0.13
31	20.34	33.537	5.46	432	50	13.67	33.49	6.78	25.11	286	0.20
41	15.99	33.434	6.79	338	75	12.13	33.55	6.35	25.46	253	0.27
55	12.98	33.514	6.75	271	100	11.68	33.71	5.85	25.67	233	0.33
70	12.22	33.527	6.46	256	125	11.00	34.00	5.45	26.02	200	0.39
95	11.78	33.664	5.93	238	150	10.34	34.10	5.40	26.21	181	0.44
116	11.32	33.899	5.58	213	200	9.65	34.10	5.39	26.33	170	0.53
135	10.66	34.090	5.38	188	250	9.04	34.06	5.27	26.40	164	0.61
154	10.26	34.105	5.40	180	300	8.50	34.04	4.90	26.47	157	0.69
184	9.88	34.115	5.39	173	400	7.11	33.99	4.10	26.63	142	0.85
219	9.40	34.079	5.37	168	500	5.69	33.97	3.31	26.80	126	0.99
248	9.07	34.062	5.30	164	600	4.67	34.00	2.42	26.94	112	1.11
298	8.52	34.044	4.92	157							
353	7.78	34.015	4.44	149							
437	6.59	33.975	3.80	136							
521	5.39	33.967	3.12	122							
605	4.62	34.004	2.38	111							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

H-17

HORIZON; September 21, 1963; 1835 GCT; 39°22.5'N, 148°44'W; sounding, 2800+ fm; wind, 320°, force 4; weather, partly cloudy; sea, very rough; wire angle, 02°.

1	20.47	33.559	5.53	434	0	(20.47)	(33.56)	(5.53)	(23.56)	(434)	(0.00)
11	20.46	33.559	5.53	434	10	20.46	33.56	5.53	23.56	433	0.04
21	20.45	33.567	5.50	433	20	20.44	33.57	5.50	23.58	432	0.09
26	20.44	33.566	5.40	433	30	20.40	33.56	5.57	23.58	432	0.13
31	20.37	33.558	5.59	431	50	14.30	33.50	6.81	24.99	298	0.20
41	15.86	33.440	6.81	335	75	12.26	33.58	6.40	25.46	253	0.27
55	13.51	33.527	6.79	280	100	12.00	33.73	6.02	25.62	237	0.33
70	12.50	33.560	6.52	259	125	11.18	33.90	5.64	25.91	210	0.39
95	11.96	33.707	6.04	238	150	10.58	34.09	5.40	26.16	186	0.44
115	11.37	33.765	5.90	224	200	9.84	34.11	5.40	26.30	173	0.53
135	10.99	34.033	5.44	197	250	9.17	34.07	5.44	26.38	165	0.62
154	10.46	34.099	5.39	184	300	8.65	34.04	5.12	26.44	160	0.70
184	10.05	34.127	5.35	175	400	7.08	33.99	4.11	26.63	141	0.86
219	9.59	34.095	5.42	170	500	5.62	33.97	3.29	26.81	125	1.00
248	9.19	34.068	5.44	166	600	4.64	34.01	2.40	26.95	111	1.12
298	8.68	34.041	5.15	160							
351	7.89	34.018	4.61	150							
435	6.48	33.971	3.74	135							
520	5.38	33.970	3.14	122							
605	4.60	34.009	2.36	111							

H-18

HORIZON; September 22, 1963; 1831 GCT; 39°22'N, 148°38.5'W; sounding, 2800+ fm; wind, 220°, force 7; weather, overcast; sea, very rough; wire angle, 04°.

1	20.34	33.562	5.52	430	0	(20.34)	(33.56)	(5.52)	(23.60)	(430)	(0.00)
11	20.30	33.559	5.47	430	10	20.30	33.56	5.48	23.61	429	0.04
21	20.33	33.560	5.44	430	20	20.33	33.56	5.45	23.60	430	0.09
26	19.99	33.554	5.43	422	30	18.25	33.49	6.22	24.08	385	0.13
31	17.86	33.483	6.37	376	50	13.80	33.55	6.70	25.13	284	0.19
41	14.90	33.511	6.78	309	75	12.23	33.62	6.36	25.49	250	0.26
55	13.32	33.563	6.64	274	100	11.60	33.75	5.87	25.71	229	0.32
70	12.53	33.603	6.51	256	125	11.08	33.98	5.49	25.99	203	0.38
95	11.82	33.712	5.97	235	150	10.46	34.10	5.34	26.19	183	0.43
115	11.30	33.882	5.65	214	200	9.69	34.10	5.38	26.32	171	0.52
135	10.83	34.066	5.38	192	250	9.05	34.06	5.39	26.40	164	0.60
154	10.34	34.106	5.33	181	300	8.48	34.03	5.10	26.46	158	0.68
183	9.84	34.109	5.34	173	400	6.93	33.99	4.00	26.65	139	0.84
218	9.52	34.092	5.40	169	500	5.38	33.97	3.10	26.84	122	0.98
247	9.10	34.064	5.41	165	600	4.54	34.02	2.20	26.97	109	1.10
297	8.52	34.026	5.12	159							
352	7.78	34.017	4.49	149							
435	6.32	33.972	3.65	133							
519	5.14	33.972	2.94	119							
604	4.50	34.020	2.18	109							

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6309

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

H-19 HORIZON; September 24, 1963; 1829 GCT; 39°16'N, 148°41.5'W; sounding, 2800+ fm; wind, 300°, force 6; weather, squalls; sea, high; wire angle, 08°.

1	20.02	33.615	5.53	418	0	(20.02)	(33.62)	(5.53)	(23.73)	(418)	(0.00)
11	20.02	33.616	5.52	418	10	20.02	33.62	5.52	23.73	418	0.04
21	20.03	33.617	5.49	419	20	20.03	33.62	5.50	23.72	418	0.08
26	20.02	33.619	5.40	418	30	20.03	33.62	5.51	23.72	418	0.13
31	20.03	33.616	5.52	419	50	15.00	33.48	6.70	24.82	314	0.20
41	19.54	33.600	5.56	408	75	12.25	33.51	6.45	25.41	258	0.27
55	13.84	33.476	6.84	291	100	11.50	33.62	5.81	25.63	237	0.33
70	12.42	33.501	6.57	262	125	10.94	33.97	5.55	26.00	201	0.39
94	11.67	33.568	5.94	243	150	10.49	34.11	5.37	26.19	183	0.44
114	11.12	33.833	5.63	214	200	9.70	34.11	5.39	26.33	170	0.53
134	10.78	34.057	5.48	192	250	9.05	34.06	5.38	26.40	164	0.61
153	10.42	34.113	5.35	182	300	8.43	34.04	4.92	26.48	156	0.70
182	9.98	34.132	5.37	173	400	6.90	33.99	4.00	26.66	139	0.85
217	9.46	34.080	5.40	169	500	5.45	33.96	3.15	26.82	124	0.99
246	9.10	34.058	5.39	165	600	4.54	34.01	2.27	26.96	110	1.11
295	8.50	34.038	5.00	158							
350	7.68	34.015	4.43	148							
434	6.38	33.972	3.69	134							
516	5.24	33.963	3.01	121							
600	4.54	34.012	2.27	110							

H-20 HORIZON; September 25, 1963; 1837 GCT; 39°10.5'N, 148°45'W; sounding, 2800+ fm; wind, 340°, force 3; weather, partly cloudy; sea, rough; wire angle, 00°.

1	20.16	33.552	5.54	427	0	(20.16)	(33.55)	(5.54)	(23.64)	(427)	(0.00)
11	20.14	33.554	5.52	426	10	20.14	33.55	5.53	23.64	426	0.04
21	20.16	33.558	5.51	426	20	20.16	33.56	5.51	23.64	426	0.09
26	20.18	33.557	5.41	427	30	20.16	33.56	5.52	23.64	426	0.13
31	20.16	33.563	5.53	426	50	14.42	33.48	6.87	24.95	302	0.20
41	17.43	33.460	6.55	368	75	12.34	33.53	6.50	25.40	258	0.27
55	13.72	33.481	6.90	288	100	11.68	33.61	5.99	25.59	241	0.33
70	12.50	33.518	6.62	262	125	11.12	33.91	5.57	25.93	209	0.39
95	11.80	33.586	6.05	244	150	10.61	34.08	5.42	26.15	187	0.44
115	11.33	33.742	5.77	225	200	9.78	34.12	5.43	26.32	171	0.53
135	10.92	34.031	5.44	196	250	9.03	34.05	5.43	26.39	165	0.62
154	10.52	34.097	5.41	185	300	8.43	34.03	5.10	26.47	157	0.70
184	10.00	34.132	5.40	174	400	6.99	34.00	4.09	26.65	139	0.86
219	9.52	34.097	5.46	169	500	5.39	33.97	3.11	26.84	122	0.99
248	9.07	34.058	5.44	165	600	4.56	34.01	2.30	26.96	110	1.11
298	8.46	34.030	5.11	158							
352	7.78	34.024	4.57	148							
436	6.36	33.976	3.72	133							
521	5.12	33.970	2.96	119							
605	4.52	34.019	2.26	109							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

HORIZON; September 26, 1963; 1830 GCT; 39°09'N, 148°51'W; sounding, 2800+ fm; wind, 350°, force 3; weather, partly cloudy; sea, moderate; wire angle, 02°. H-21

1	20.08	33.578	5.48	423	0	(20.08)	(33.58)	(5.48)	(23.68)	(422)	(0.00)
11	20.08	33.578	5.49	423	10	20.08	33.58	5.49	23.68	422	0.04
21	20.08	33.576	5.49	423	20	20.08	33.58	5.49	23.68	422	0.08
26	20.10	33.577	5.38	423	30	20.07	33.58	5.54	23.68	422	0.13
31	20.06	33.583	5.55	422	50	14.50	33.47	6.80	24.92	304	0.20
41	16.24	33.460	6.70	341	75	12.49	33.55	6.46	25.39	260	0.27
55	13.40	33.489	6.81	281	100	11.70	33.66	5.85	25.63	237	0.33
70	12.68	33.538	6.57	264	125	11.08	33.92	5.58	25.94	207	0.39
95	11.82	33.633	5.93	241	150	10.47	34.10	5.40	26.19	184	0.44
115	11.31	33.786	5.67	221	200	9.65	34.11	5.40	26.34	170	0.53
135	10.83	34.049	5.51	193	250	9.02	34.05	5.43	26.39	164	0.61
154	10.37	34.111	5.39	181	300	8.47	34.04	5.00	26.47	157	0.70
184	9.90	34.121	5.37	173	400	6.90	33.99	4.00	26.66	139	0.85
219	9.36	34.080	5.46	167	500	5.39	33.97	3.10	26.84	122	0.99
248	9.05	34.053	5.43	165	600	4.50	34.02	2.17	26.98	109	1.11
298	8.50	34.035	5.02	158							
351	7.79	34.024	4.46a)	148							
435	6.29	33.975	3.64	132							
520	5.16	33.972	2.97	120							
604	4.48	34.024	2.14	108							

HORIZON; September 27, 1963; 1825 GCT; 39°06.5'N, 148°52.5'W; sounding, 2800+ fm; wind, direction missing, force 1; weather, cloudy; sea, moderate; wire angle, 02°. H-22

1	20.05	33.560	5.51	423	0	(20.05)	(33.56)	(5.51)	(23.67)	(423)	(0.00)
11	20.03	33.560	5.59	423	10	20.03	33.56	5.58	23.68	423	0.04
21	20.04	33.558	5.51	423	20	20.03	33.56	5.52	23.68	423	0.08
26	20.04	33.560	5.43	423	30	20.04	33.59	5.58	23.70	421	0.13
31	20.04	33.595	5.59	420	50	14.05	33.47	6.85	25.02	295	0.20
41	15.49	33.468	6.84	325	75	12.32	33.56	6.43	25.43	256	0.27
55	13.50	33.479	6.85	284	100	11.86	33.66	5.91	25.60	240	0.33
70	12.50	33.536	6.54	261	125	10.95	33.96	5.50	26.00	202	0.39
95	11.88	33.632	5.97	242	150	10.46	34.10	5.35	26.19	183	0.44
115	11.20	33.850	5.64	214	200	9.75	34.12	5.39	26.33	170	0.53
135	10.76	34.068	5.38	191	250	9.02	34.05	5.42	26.39	164	0.61
154	10.38	34.111	5.35	181	300	8.48	34.04	5.06	26.47	157	0.69
184	9.98	34.135	5.35	173	400	6.89	34.00	3.98	26.67	138	0.85
219	9.46	34.095	5.45	168	500	5.34	33.97	3.06	26.84	122	0.98
248	9.04	34.054	5.41	164	600	4.48	34.03	2.15	26.99	108	1.10
299	8.50	34.035	5.07	158							
352	7.71	34.024	4.48	147							
436	6.30	33.976	3.64	133							
520	5.07	33.972	2.89	119							
604	4.45	34.029	2.14	108							

a) Mean value of 4.41 and 4.52 ml/L.

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

H-23

HORIZON; September 29, 1963; 0752 GCT; 39°05.5'N, 148°51'W; sounding, 2800+ fm; wind, 320°, force 5; weather, missing; sea, high; wire angle, 03°.

1	19.86	33.594	5.50	416	0	(19.86)	(33.59)	(5.50)	(23.74)	(416)	(0.00)
11	19.86	33.589	5.50	416	10	19.86	33.59	5.50	23.74	416	0.04
31	19.87	33.582	5.51	417	20	19.87	33.59	5.50	23.74	417	0.08
41	15.32	33.496	6.72	319	30	19.87	33.58	5.51	23.73	417	0.13
55	13.18	33.509	6.77	275	50	13.90	33.50	6.76	25.07	290	0.20
70	12.42	33.518	6.57	261	75	12.28	33.52	6.49	25.41	258	0.26
95	11.80	33.573	6.11	245	100	11.74	33.60	6.03	25.57	242	0.33
110	11.64	33.686	5.85	234	125	11.28	33.88	5.57	25.87	214	0.39
139	10.74	34.070	5.33	190	150	10.56	34.10	5.32	26.17	185	0.44
165	10.34	34.122	5.32	180	200	9.79	34.10	5.40	26.31	173	0.53
228	9.39	34.075	5.42	168	250	9.13	34.06	5.37	26.38	165	0.61
298	8.56	34.044	5.10	158	300	8.53	34.04	5.06	26.46	158	0.70
397	6.99	33.992	4.09	140	400	6.94	33.99	4.06	26.65	140	0.85
471	5.88	33.966	3.45	128	500	5.44	33.96	3.16	26.82	124	0.99
520	5.18	33.965	2.90	120	600	4.47	34.03	2.10	26.99	108	1.11
593	4.51	34.022	2.14	109	700	4.05	34.14	1.31	27.12	95	1.22
743	3.91	34.177	1.06	91	800	3.75	34.21	0.91	27.21	87	1.32
891	3.50	34.264	0.70	81	1000	3.19	34.35	0.65	27.37	72	1.49
1038	3.10	34.349	0.63	71	1200	(2.83)	(34.40)		(27.44)	(65)	(1.64)
1187	2.85	34.394	0.59	65							

125.44
I

ALEXANDER AGASSIZ; September 9, 1963; 2011 GCT; 26°49.5'N, 114°56.5'W; sounding, 1900 fm; wind, 320°, force 2; weather, clear; sea, moderate; wire angle, 05°.

1	23.46	33.862	4.7	491	0	(23.46)	(33.86)	(4.7)	(22.96)	(491)	(0.00)
11	22.73	33.864	3.9	471	10	22.80	33.86	3.9	23.15	473	0.05
31	21.68	34.002	4.9 a)	433	20	22.30	33.91	4.2	23.33	456	0.09
41	19.77	33.751	5.4	402	30	21.74	34.00	4.8	23.55	435	0.14
56	16.90	33.703	5.7 b)	338	50	17.88	33.70	5.7	24.33	361	0.22
71	15.34	33.716	5.4	303	75	14.92	33.72	5.2	25.02	294	0.30
97	12.97	33.731	4.0	255	100	12.70	33.75	3.7	25.50	249	0.37
115	11.82	33.877	2.7	223	125	11.44	33.96	2.3	25.91	210	0.43
135	11.10	34.016	2.1	200	150	10.60	34.04	2.1	26.12	190	0.48
154	10.49	34.053	2.1	187	200	10.10	34.30	1.2	26.41	163	0.57
185	10.20	34.227	1.5	170	250	9.73	34.40	0.8	26.55	149	0.65
219	9.97	34.359	1.0	156	300	9.17	34.42	0.5	26.66	139	0.72
248	9.75	34.402	0.8	150	400	8.34	34.46	0.3	26.82	124	0.86
297	9.19	34.420	0.5	140	500	7.25	34.45	0.2	26.97	109	0.99
351	8.82	34.478	0.3	130	600	6.27	34.46	0.1	27.11	96	1.10
435	7.96	34.448	0.3	119							
519	7.06	34.457	0.2	106							
605	6.23	34.458	0.1	96							

a) Alternate value, 5.1 ml/L, not used in interpolation.
b) Alternate value, 5.4 ml/L, not used in interpolation.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_T cl/ton	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T cl/ton	ΔD dyn m

ALEXANDER AGASSIZ; September 11, 1963; 0132 GCT; 26°49.5'N, 114°56.5'W; sounding, 2140 fm; wind, 320°, force 4; weather, partly cloudy; sea, very rough; wire angle, 18°.

1	23.54	33.860	4.91	494	0	(23.54)	(33.86)	(4.91)	(22.94)	(494)	(0.00)
11	22.87	33.848	4.35	476	10	22.93	33.85	4.37	23.10	477	0.05
29	21.62	33.809	5.15	445	20	22.33	33.83	4.71	23.26	463	0.10
39	19.28	33.679	5.63	396	30	21.45	33.80	5.19	23.48	442	0.14
53	17.39	33.675	5.75	351	50	17.75	33.68	5.74	24.34	359	0.22
68	15.86	33.674	5.63	318	75	15.00	33.68	5.24	24.97	299	0.30
92	13.38	33.704	4.31	265	100	12.75	33.75	3.77	25.49	250	0.37
111	12.10	33.822	3.10	232	125	11.50	33.92	2.62	25.86	214	0.43
130	11.29	33.93 a)	2.58	210	150	10.60	33.93	2.60	26.03	198	0.48
149	10.62	33.925	2.62	199	200	10.15	34.30	1.27	26.40	164	0.58
177	10.51	34.26 a)	1.48	172	250	9.95	34.43	0.71	26.54	151	0.66
211	10.05	34.322	1.18	160	300	9.32	34.47	0.43	26.67	138	0.73
239	10.10	34.432	0.77	153	400	8.55	34.51	0.28	26.83	123	0.87
286	9.32	34.424	0.57	141	500	7.39	34.47	0.13	26.97	110	0.99
339	9.40	34.570	0.20	132	600	(6.45)	(34.47)		(27.10)	(97)	(1.11)
421	8.26	34.487	0.29	121							
503	7.35	34.471	0.12	109							
587	6.56	34.466	0.18	99							

ALEXANDER AGASSIZ; September 15, 1963; 1322 GCT; 19°15'N, 105°27'W; sounding, 790 fm; wind, 300°, force 3; weather, cloudy; sea, very rough; wire angle, 08°.

1	29.24	34.111	4.11	646	0	(29.24)	(34.11)	(4.11)	(21.34)	(647)	(0.00)
11	29.27	34.113	3.98	647	10	29.27	34.11	4.00	21.33	648	0.06
31	29.31	34.131	4.23	647	20	29.29	34.12	4.10	21.33	647	0.13
41	27.73	34.399	4.59	578	30	29.31	34.13	4.22	21.33	647	0.19
57	24.98	34.473	4.49	490	50	26.20	34.46	4.56	22.59	527	0.31
72	20.76	34.465	3.01	376	75	19.85	34.49	2.48	24.43	351	0.42
96	16.19	34.657	0.32	253	100	15.80	34.68	0.20	25.57	243	0.50
115	14.68	34.716	0.03	217	125	14.10	34.76	0.03	26.00	202	0.55
135	13.68	34.792	0.03	191	150	13.31	34.81	0.04	26.20	182	0.60
155	13.21	34.808	0.04	181	200	12.44	34.81	0.04	26.38	166	0.69
184	12.64	34.811	0.04	170	250	11.72	34.80	0.03	26.51	154	0.77
218	12.25	34.804	0.04	163	300	11.07	34.76	0.04	26.60	145	0.85
248	11.76	34.803	0.03	154	400	9.18	34.71	0.02	26.88	118	0.99
298	11.10	34.756	0.04	146	500	7.49	34.57	0.04	27.03	104	1.11
352	10.16	34.771	0.03	129	600	6.44	34.53	0.04	27.15	93	1.22
436	8.50	34.646	0.02	112							
520	7.22	34.541	0.05	102							
605	6.40	34.525	0.04	93							

a) Cracked bottle; value falls on property curve.

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